

### **WHAT IS CLAIMED IS:**

1. An internal combustion-engined setting tool for driving in fastening elements, comprising at least one main combustion chamber (11); a piston guide (17) adjoining the main combustion chamber (11); a drive piston (15) displaceably supported in the piston guide (17) and displaceable in a setting direction (40) by expandable gases produced in the main combustion chamber (11) upon ignition of a compressible fuel filling the main combustion chamber (11); a pre-chamber (20) for generating a pressure that is transmitted to the main combustion chamber (11) before the ignition (19) of the air-fuel mixture in the main combustion chamber takes place, the pre-chamber (20) being formed by a space within the piston guide (17) beneath a bottom of the drive piston (15) remote from the main combustion chamber (11) when the drive piston occupies an initial position thereof; and a transfer channel (24) for communicating the pre-chamber (20) and the main combustion chamber (11).

2. A setting tool according to claim 1, wherein the pre-chamber (20) comprises a pre-combustion chamber (21), and wherein the setting tool further comprises valve means (26; 27) provided in the transfer channel (24) for

communicating, at least temporarily, the pre-combustion chamber (21) with the main combustion chamber (11).

3. A setting tool according to claim 1, wherein the pre-chamber (20) comprises a pre-combustion chamber (21) and a pressure chamber (22), and wherein the setting tool further comprises valve means (26; 27) provided in the transfer channel (24) for communicating, at least temporarily, the pressure chamber (22) with the main combustion chamber (11).

4. A setting tool according to claim 3, further comprising a plate (3) for separating the pre-combustion chamber (21) from the pressure chamber (22) and displaceably supported on a piston rod (38) of the drive piston (15).

5. A setting tool according to claim 1, further comprising detection means (14) for detecting pressure in the main combustion chamber (11); and ignition means (13) for igniting the air-fuel mixture in the main combustion chamber (11) and actuated in response to the detection means (14) detecting a predetermined pressure in the main combustion chamber (11).

6. A setting tool according to claim 2, wherein the valve means (26; 27) comprises a check valve (26).

7. A setting tool according to claim 6, wherein the check valve (26) is so arranged in the transfer channel (24) that it provides for flow of a medium (42) from the pre-chamber (20) to the main combustion chamber (11) but prevents flow of the medium in an opposite direction.

8. A setting tool according to claim 2, wherein the valve means (27) forms a passage for an expandable flame front (28) leaving the pre-chamber (20).

9. A setting tool according to claim 1, further comprising magnetic holding means (12) for retaining the drive piston (15) in the initial position (30) thereof with a predetermined holding force.

10. A setting tool according to claim 1, wherein the transfer channel (24) has a mouth opening (25) which opens into the pre-chamber (20) and is spaced from the main combustion chamber (11) by a distance corresponding to an axial thickness (18) of the drive piston (15).